DNV·GL

Certificate No:
TAP00000D5

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

with type designation(s)
HWDB/ HPG/ HI

Issued to
Tubes International Sp. z o.o.
Poznan, Poland

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Temperature range:	**-50 to 70 °C**
Max. working press.:	**300 bar(g)**
Sizes:	**DN 6**

This Certificate is valid until **2020-06-29**.

Issued at **Høvik** on **2016-08-03**

for **DNV GL**

DNV GL local station: **Gdansk CMC**

Approval Engineer: **Maheshraja Venkatesan**

Marianne Spæren Marveng
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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Product description

One type of flexible hose assembly (HWDB/HPG/HI) with PTFE Smoothbore for high pressure gases comprising of two braids (polyaramamid + stainless steel). Outside cover made of Hytral, colors: Black, red, green and blue.

Couplings	:	ZS/07/0941 or ZS/07/0942 or AF-HLBW140-04-04SS or AF-HLMZ111-16-04SS or ZS/16/0295, ZS/12/0431, ZS/16/0362, made of stainless steel AISI304.
Ferrules	:	ZS/07/0944 or AF-TL3-04SS, made of stainless steel AISI304

The hoses are produced at AFLEX Hose Ltd, England.

The couplings are produced at Tubes International.

Application/Limitation

This certificate is valid for the specific assembly of hose and coupling type as specified, assembled and delivered by the holder (named as manufacturer) of this certificate.

All hose assemblies delivered under this type approval certificate shall be in compliance with an assembly procedure issued by the certificate holder.

Standard connections (elbows, adapters, flanges, fittings, threaded connections, etc.) at the outer ends of the end connections are not evaluated in connection with the prototype tests.

Each hose assembly is before delivery to be hydraulic pressure tested to 1.5 times the maximum working pressure, and delivered with the manufacturer's pressure test certificate with reference to this type approval certificate.

Flexible hoses are only to be used where it is necessary due to vibrations or flexible mounting of machinery. The hose shall not replace/be used where permanent piping is possible/required.

Hose assemblies covered by this certificate shall not be installed in systems subject to pressure below atmospheric.

This hose is not to be used in systems where pressure impulses may occur.

Hoses shall only be fitted in places where they are always accessible.

The hoses covered by this certificate are not permitted on boiler fronts.

Hoses are to be mounted in accordance with the manufacturer's instructions.

Type Approval documentation

Part list and materials.
Manufacturer's datasheets.
Drawings: SK-040110-JH Rev. A dated 04.01.10, TU/01/10/0820 Rev. 0 dated 11.08.10, TU/01/10/0821 Rev. 0 dated 11.08.10, TU/50/12/0722 ed 0 dated 23.04.12, ZS/07/0688 Rev. 0 dated 11.08.10, W-2195 Rev. 0 dated 11.08.10, W-2194 Rev. 0 dated 11.08.10, ZS/07/0941 Rev. 0 dated 11.08.10, W-2308 Rev. 0 dated 11.08.10, W-2214 Rev. 0 dated 11.08.10, ZS/07/0942 Rev. 0 dated 11.08.10, ZS/07/0944 Rev. 0 dated 11.08.10, ZS/12/0431 ed. 0 dated 23.04.12, W4308 Ed. 0 dated 23.04.12, W-4309 ed. 0 dated 23-04-12, TU/61/16/0001 Rev. 0 dated 17.02.2016, TU/61/16/0048 Rev. 0 dated 17.02.2016, ZS/16/0295 rev.0 dated 10.02.2016, ZS/15/0297 rev. 0 dated 09.03.2015, W-5490 rev. 0 dated 09.03.2015, W-5492 rev. 1 dated 04.05.2015, ZS/14/0840 rev. 0 dated 09.03.2015, ZS/16/0293 rev. 0 dated 08.02.2016, ZS/16/0362 rev. 0 dated 16.02.2016, ZS/15/0327 rev. 0 dated 09.03.2015, W-5496 rev. 1 dated 04.05.2015, W-N-W24-SS-304 rev.0 dated 09.03.2015
Test reports dated 2010/07/28, 2011/01/09 and 28-03-2012 witnessed by DNV.
LAPI (Fire) test report 1824.0ISO0110/10.

Cold flexibility test report BZS/M.007.11B
Test report number: 01/435/W dated: 07-07-2011 witnessed by DNV.
Received documents: TU/01/11/1394, TU/01/11/1395, AF-TL3-04SS, AF-HLBW140-04-04SS and AF-HLMZ111-16-04SS
Test reports for hose AF-HWDB/HPG/HI/G-06 witnessed by DNV GL dated 2016-03-01

Tests carried out

Burst, Change in length, Dimensional check, Ozone resistance, Fire, Cover adhesion, Cold flexibility.

Marking of product

For traceability to this Type Approval, the products are at least to be marked with:

- Manufacturer's name or trade mark
- Type designation
- Maximum working pressure
- Size

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform a survey every second year, to verify that the conditions for the type approval are complied with and to witness the following tests on a selection of sizes:

- Dimensional check.
- Change in length
- Leakage test
- Burst test

The tests shall be performed in accordance with procedures given in DNVGL-CP-0183.

The tests are to be performed with the same type of couplings fitted that are Type Approved with the hoses.